

ble quantity of mucus stained by bile. The *colon* contained some fecal matters mingled with mucus, and presented a few points of red injection. The bladder and kidneys natural.

Thorax.—The lungs were in their normal state. Their inferior posterior portions yielded a slight frothy serosity when cut into. The heart and great vessels contained blood not coagulated.

BALTIMORE ALMSHOUSE, Jan. 8th, 1844.

ART. III.—*On the Treatment of Yellow Fever.* By F. WURDEMANN, M. D., of Charleston, S. C.

Those who have had frequent opportunities of observing yellow fever, know that it is often modified in different epidemics. It is in one so mild, that patients get well under almost every treatment; while in another, the action of an emetic or drastic cathartic at the commencement of the attack will place the case beyond the control of medicine. The "ten and ten" grain doses of calomel and jalap, which were so successful in the hands of Rush, have long been abandoned by the Southern practitioner; and salts and senega, once a popular remedy, are now only empirically prescribed. The present paper has been written chiefly to show the relative mortality in what may be called the mercurial treatment, and another which I now consider better adapted to the nature of the disease.

If I were asked what was the most prominent pathognomonic symptom in yellow fever, one that most distinguished it from those cases of remittent bilious fever complicated with gastritis, so prevalent during epidemics of the former, I would answer, the total cessation, or the much diminished and vitiated secretion of bile. For although it is sometimes ushered in by bilious vomiting, the bile thus ejected has been mechanically forced from the gall-bladder, where it had been collected previous to the attack. It is very certain that the restoration of the functions of the liver is the most favourable symptom in the course of the disease. The physiognomy of yellow fever differs also from that of the most aggravated cases of remittent bilious fever. In the former, there is a peculiar glassy appearance of the eyes, even when they are but slightly red; an anxious expression of the countenance, that the real or assumed calmness of the patient cannot entirely control; and a constant, but more or less strongly marked torpor of the cutaneous circulation, evinced by the slow return of blood pressed by the finger from the injected capillaries, as if these vessels were in a state of passive hyperemia.

From the prominent symptoms in yellow fever, the effects of remedial

The patient had several epileptic fits during the day following his admission, both before and after the administration of quinine, each lasting about a minute or little more. He had been subject to them before his present attack. His mind was never clear after admission; and during the last twenty-four hours preceding death, slept during nearly the whole time, and was with difficulty aroused.

Autopsy ten hours after death.

Exterior.—Excessive rigidity, slight emaciation.

Head.—Slight effusion of blood under the arachnoid membrane, which membrane was slightly opalescent, and separated with great facility from the convolutions. The surface of the brain was of a marked pinky hue; and the cineritious portion was of a much redder colour than usually met with. The difference between it and the medullary portion well marked. When cut into, the surface seemed red, from the number of small vessels containing blood. The ventricles contained some little serum; and the veins traversing their surfaces were enlarged. The *choroid plexus* contained a number of hydatiform bodies. The substance of the brain normal.

Abdomen.—The liver extended below the ribs about two and a half inches, and encroached upon the stomach on the left side, which was largely distended, and reached below the umbilicus. The liver was smooth externally, and of a uniform slaty, bronze colour, marked with white striæ through it. When cut into, it presented the same uniform slaty, olive or bronze colour, with the red and yellow substances confounded together, so as not to be distinguished. Moist when cut into, its vessels not much gorged with blood, and easily penetrated by the finger. No one portion more changed than another. Gall-bladder contained about $\frac{3}{4}$ iv. of bile, apparently healthy.

The *spleen* was nine inches long by about four in thickness. It was a perfect pulp, resembling in colour the damson juice; and when deprived of its envelope, not admitting the slightest handling.

Stomach.—This organ was large, and very much distended with gas. It contained a coat of viscid, glairy mucus, covering its entire surface, and scraped away with difficulty by the handle of the scalpel. The mucous membrane below, of a uniform pinky hue, soft and slightly thickened, giving, at the pyloric extremity, flakes half an inch long; in the great cul-de-sac, three to four lines. The mucous membrane slightly mammeloned; and when exposed to the air for some time, assumed a more florid hue. In the *duodenum*, the mucous membrane still more mammeloned, and the red colour more marked than in the stomach; friable, and presenting more evident traces of inflammation. The *jejunum* and *ileum* evinced little alteration; the mucous membrane somewhat softened, but normal as to colour. The glands of Peyer and Brunner alike perfectly normal, and only to be discovered by close inspection. Both these intestines contained a considera-

The first and larger number of my patients were treated by the mercurial plan. When called to them in the first stage, and even in the second, if the pulse could bear it, I bled freely from the arm. The subjects were, generally, robust men, and twenty, sometimes thirty ounces of blood were drawn before the pulse became soft, the chief guide to the amount of the bleeding required. Except in cases in which intense headache threatened cerebritis, the patient was placed in the recumbent posture to avoid syncope, and allow enough blood to flow to make an impression on the congested abdominal vessels. The immediate effects of the venesection were a marked abatement of the pains in the eyeballs, back and limbs; often a cessation of vomiting and a softening of the skin. If the vomiting, frequently present at the commencement of the attack, continued, sinapisms were applied to the epigastrium, and enemata administered until the bowels were acted on, when it always ceased.

As soon as the stomach could retain it, ten grains of calomel were given every two hours, and two drachms of Epsom salts, in two ounces of water, an hour after each dose, until free catharsis was produced; the salts was then omitted, and the calomel, reduced to eight or six grains, was continued every two hours. The limbs and chest were now freely sponged with cold whisky and other evaporating lotions, repeated as often as the burning heat and dryness of the skin returned; and the patient, placed on a *diète absolue*, was ordered to assuage his thirst by ice, which was given *ad libitum*. When the arterial action had thus been somewhat subdued, a large blister was applied to the upper half of the abdomen, covering the region of the liver rather more than the left hypochondrium; the beneficial effects of which were soon manifested in the increased tone of the cutaneous capillaries, the blood returning to them more rapidly after pressure on the skin. This was not so promptly produced by cupping, which I entirely abandoned for the blister. The pains in the head and back would also subside, and, in some cases, strangury ensue, a certain sign of the breaking up of the disease.

The mercurial fetor was perceived in a few cases in thirty-six hours, and in many the gums were swollen in from two and a half to four days. It was only then that thin gruels were given, unless previously required by the protraction of the case. When indicated, revulsives to the extremities, to the inside of the thighs, and nape of the neck were employed; but the chief object was to produce ptyalism, which I then considered the safeguard of the patient. I have, however, seen cases in which black vomit was brought on, after it was well established, by the administration of a mild cathartic.

When, instead of the mercurial action on the gums, a passive hemorrhage ensued, the calomel was omitted, and the following mixture given: Peruvian bark, \mathfrak{z} ss., boil in ten ounces of water for about fifteen minutes; then

agents and the autopsies I have made, I am free to confess that I believe it to be distinctly congestive; that, so far from gastro-duodenitis and hepatitis being present in every case, the vessels of the mucous membranes of the stomach, and, in bad cases, of the duodenum, are in a condition of passive hyperemia, and the liver in one of anemia. Cases are occasionally ushered in with gastritis and cerebritis, and these are generally fatal; but I have often been able to trace inflammation of the stomach, when present, to the injudicious use of emetics and drastic cathartics.

During the epidemic of 1838, that followed the extensive conflagration which laid waste nearly one-fourth of the city of Charleston, South Carolina, the congestive type of the disease was very distinct; many of the cases terminating in passive hemorrhages from the gums, from blistered surfaces and from scarifications of cups, and, in some, from the intestines. The city had been crowded with Irish labourers and northern mechanics, who had been engaged to rebuild its burnt district, and who, as strangers, were obnoxious to the malaria. This generated from numerous exposed cellars filled with stagnant rain-water, and from a large quantity of oyster-shells, recently removed from their muddy river beds and spread over several streets, was more rife than it had been for many years, and the epidemic spread rapidly over the whole city.

The number of cases that came under my care was 191, of which 25 died. About ten were mild, which will leave 181 well marked. Three-fourths of the subjects were addicted to the free use of ardent spirits, and many of the Irishmen, believing that the pains in the back and limbs proceeded from a "cowlid," Anglice cold, had begun the treatment by hot whisky punch.

Two patients became sick while using daily more than a pint of brandy, and were deeply intoxicated when attacked. One, a mass of bloated flesh, died; the other, a Pole, whose whole surface was for several days mottled with red and purple, recovered. One woman, an Italian, was moribund when I first saw her; another, an elderly Irish woman, had black vomit, which ceased under the treatment; but the alvine evacuations, which were of the colour of pipe-clay and consistent, continued devoid of bile, and she died, apparently, in a state of anemia, on the fourth day after the cessation of the vomit: neither had had any previous medical treatment. Another Irish woman died soon after eating, during her convalescence, seven green apples. One was near the term of her gestation, and gave birth to a fine, healthy child, that thrived and was alive the year after. The labour began in the last stage, and soon after I had removed the placenta, which was attended by less than the usual hemorrhage, she threw up black vomit, and died in a couple of hours. To give a fair estimate of the efficacy of the treatment, these should be deducted from the deaths, which will leave 20 in 176 cases.

infuse in the hot decoction two drachms of serpentaria Virginiana, and, when cold, add to the mixture one to two drachms of elixir vitriol, according to the degree of the hemorrhage; two tablespoonfuls to be given every two hours. This mixture acted so well that I began to consider the hemorrhage as a sign that the case had become manageable. I have seen black vomit in several instances appear during its continuance; but about three-fourths recovered, although some patients in whom it had continued for seven and nine days, were first reduced to an almost complete state of anemia. Nitrate of silver, chloride of soda and various astringent lotions were found of no avail to check the bleeding; ice alone seemed to produce a temporary contraction of the vessels, and diminished the fetor of the putrid blood better than the chloride of soda. The diet was in this stage increased, and animal broths given freely.

The loss by this treatment was one in seven; it must, however, be remembered that the first cases of the epidemic are the least manageable, probably from the high susceptibility of those first attacked to the influence of the malaria; on the other hand, the sick, during the cold days of October, also present obstinate cases, and, at the best, frequently run into typhoid fever. None under the mercurial treatment recovered after black vomit. In one child, five years old, and in a lad fifteen years of age, who had been rendered almost exsanguineous by previous repeated attacks of intermittent fever, sloughing of the cheek ensued during the prostration of the vital forces by the passive hemorrhage. In a Pole, also, to whom a drunken nurse had given 120 grains of calomel, by mistake, in twelve hours, and in whom the rapid occurrence of hemorrhage prevented the administration of even a mild aperient, exfoliation of some portions of the alveolar processes took place during convalescence. On the whole, it was clearly evident that calomel in the last stage was injurious, and caused black vomit in cases which, if treated even by *la médecine expectante*, might have got well. Even during convalescence, a mild dose of Rochelle salts often brought on a return of fever and a train of dangerous symptoms.

Thus warned of the injurious effects of all irritants of the digestive tube in the third stage, I modified the treatment in my other patients. After the first free bleeding, and the purgation by calomel and Epsom salts, and the application of the blister to the upper half of the abdomen, the calomel was continued every two hours in five grain doses, until the peculiar green tinge in the alvine evacuations indicated its action on the liver. Its use was then abandoned, and the bowels were kept free by the use of enemata of warm water throughout the disease and during convalescence. The following mixture was given after the calomel had been stopped, and, notwithstanding that, soreness of the eyeballs and frontal headache still in a measure remained, they being sympathetic of the gastric affection:

R.—Bi-carbonate of Soda, $\overline{\text{ss}}$. }
 • Paregoric Elixir, $\overline{\text{ss}}$. } Give two tablespoonfuls every two hours.
 Gum Water, $\overline{\text{vi}}$.

The sponging of the surface while hot and dry, the free use of ice, and the *diète absolue* were prescribed, as in the mercurial treatment, during the first and second stages. Under the soda mixture, the prominent symptoms soon began to subside. The soreness of the eyeballs, forehead, limbs and back was relieved; the skin became soft, and the patient no longer asked for the cold affusions, which before were peculiarly grateful to him; the tongue lost its red and pointed tip and edges, and if previously of a shining red, became covered with a white soft fur, and the alvine evacuations became freely mixed with yellow bile. In the last stage, when the symptoms threatened the secretion of black vomit, warm poultices, mixed with mustard, if the blistered surface had healed, were applied to the abdomen, and sinapisms to the calves of the leg; I have thought that much advantage was obtained by blisters to the inside of the upper third of the thighs.

If black vomit appeared, the same treatment was pursued, except that the patient, if he had previously been allowed gruels, was restricted to the use of ice in rather moderate quantities to quench his thirst, and the soda mixture was given in one tablespoonful dose every hour, the quantity being diminished one-half for children. In the latter, the thirst for about six hours was intense, but a tablespoonful of water renewed the vomiting, and the little sufferers were allowed to allay their thirst only by sucking pieces of ice enveloped in linen. Twelve hours after the cessation of the black vomit, boiled gum-water was given, and the diet very gradually increased; the recovery was generally rapid and perfect.

Under this last treatment one died in nine, and seven recovered after having had black vomit: of these four were children under six years, one 12 years and two adult men; in the last the matter was of a deep bistre colour freely mingled with mucus; in all the stools had become bilious before the black vomit appeared. Although several cases, in which the black grumous matter had been voided by the intestines, recovered, I have never seen one, in which it was at the same time ejected from the stomach, recover.

When called to a patient in the second stage, if the pulse did not permit bleeding, only ten or fifteen grains of calomel were given, and the soda mixture prescribed, the bowels being opened by enemata alone. In the case of the intoxicated Pole, nothing but the soda mixture was given, and he got well under its use, with enemata and revulsives. The preceding treat-

* The paregoric was made by macerating fourteen days, in two pints of diluted alcohol, opium, $\overline{\text{vj}}$; Benzoic acid, $\overline{\text{vj}}$; camphor, $\overline{\text{ij}}$, without the addition of honey, oil of aniseed or liquorice.

ment was also successful, this season, in a case of congestive fever attended by remissions common to our marsh lands, which occurred at the corner of Meeting and Line streets, the northern extremity of the city. The patient, a mulatto girl, aged eleven years, threw up several ounces of black vomit during a paroxysm of the fever on the fourth day. It was checked by the soda mixture, and another remission occurring, fifteen grains of quinine were given in three hours, which stopped the fever, and the patient recovered slowly but steadily. Very few of the patients had their gums affected by the calomel, and the convalescence was more rapid than under the mercurial treatment.

In the epidemic of 1839, which was not attended by hemorrhage, in about fifty well-marked cases, the loss was rather less than one in nine. Mingled with it was an ephemeral fever, closely resembling the other in the suffused eyes, pain in the head, back and limbs, but wanting the glassy appearance of the eye, and the anxious cast of the features, and yielding readily to a dose of magnesia and salts in twenty-four hours.

I attended several patients this year who had passed through the preceding epidemic with impunity. I have only twice attended the same patient for yellow fever; one had it after an interval of two years, and was delirious in both attacks; the other, an Irish woman, died, after an abortion, in the second year; another, whom I attended, and who died in a collapse, I was informed had had it the preceding year. In 1838, some of the patients, who were very sick, had resided in the city six and eight years.

In all the cases the free bleeding was very instrumental in breaking up the fever, and the blister in restoring tone to the congested vessels. Under the mercurial plan, the patients got well in spite of the purgation in the second stage; while by the other plan, the minimum doses of paregoric calmed the peculiar irritable state of the mucous membrane found in this fever, and prevented, frequently, the occurrence of black vomit; a larger dose would act on the brain and increase the tendency to congestion of that organ.

ART. IV.—*Observations on the Pulse of the Insane, made by the Physicians of several Lunatic Asylums in the United States.* Collected, arranged and analyzed by PLINY EARLE, M. D., Physician to the Bloomingdale Asylum, New York.

DESIROUS of instituting a comparison between the pulse of the sane and that of the insane, in regard to its relative velocity in those two classes, a comparison founded upon more extensive data than any heretofore attempted,